Guide to the VLDS Post-Completion Wages of Graduates Tool

Post-Completion Wages of Graduates, the first product of the Virginia Longitudinal Data System (VLDS), was mandated by legislation passed in the 2012 General Assembly session. For the first time Virginians have statistically significant and rigorously constructed data on wages of graduates 18 months and five years after they have completed their graduate degrees. This information confirms a very simple but extremely important precept, education matters. The post-completion information also allows comparisons to national trends.

Education matters because it allows individuals to compete in the economic marketplace in a variety of ways. The payoff in human capital development benefits society by allowing us to meet all manner of challenges while empowering individuals to seek their own destinies. Postsecondary education plays a tremendous role in this arena and can have a direct impact on individual earnings as has been explored in the excellent report The College Payoff: Education, Occupations, Lifetime Earnings (http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/collegepayoff-complete.pdf), released by the Georgetown University Center on Education and the Workforce (CEW).

There are several key findings from the CEW report directly relevant to SCHEV’s reports on the Post-Completion Wages of Graduates, including the first three “rules” found in the executive summary:

1. **Degree Level Matters. But...**
2. **Occupational choice can trump degree level. People with less education in high-paying occupation can out-earn people with more education in less remunerative occupations. But...**
3. **While occupation can sometimes trump education, degree level still matters most within individual occupations.**

On average:
- A high school dropout can expect to earn $973,000 over a lifetime.
- Someone with a high school diploma can expect to earn $1.3 million over a lifetime.
- A worker with some college but no degree earns $1.5 million over a lifetime.
- An associate’s degree-holder earns $1.7 million over a lifetime.
- A worker with a bachelor’s degree will earn $2.3 million over a lifetime.

Graduate degrees confer even higher earnings:
- A master’s degree-holder earns $2.7 million over a lifetime.
- A doctoral degree-holder earns $3.3 million over a lifetime.
- A professional degree-holder earns $3.6 million over a lifetime.

The CEW data make it clear that educational attainment matters in terms of wages. SCHEV does not believe that the maximization of wages and earnings is the primary goal of the higher education; however, we do believe that wages and earnings are an important consideration for an individual choosing a pathway through life.

In reviewing SCHEV’s data on graduate wages, we see these “rules” over and over. We would also add “location matters.” Wages often can vary significantly for the same occupation according to locality of the institution in which the student graduates. This assumes that a significant number of graduates
remain in the region in which the institution is located. This is especially pronounced within community college service regions."

Data Limitations

Before drilling into the Post-Completion Wages of Graduates it is important to understand certain limitations. In discussions with college presidents across the Commonwealth, a frequent theme was the tension between considering the economic value of one program versus another when there are many other values resulting from higher education. We concur with that concern, and urge reviewers of these data to be mindful of the many positive outcomes and both private and public benefits that result from higher education. More importantly, reviewers are advised that: 1) these data only reflect post-graduation experiences of alumni who remain in the Commonwealth and enter its workforce; 2) local economies may have a profound impact on wage outcomes; 3) the relationship between a specific area of study and the career one pursues is not always clear; and 4) the decisions of graduates are highly individual and varied. Because of these limitations, SCHEV strongly cautions reviewers not to use the short-term wage outcomes of recent graduates to measure the quality or long-term effectiveness of any of Virginia’s individual institutions.

A second theme emerging from our discussions with higher education leaders echoes the one addressed by the CEW report: Degree level matters. We fully agree. While we could have simply stopped with differentials in lifetime earnings presented above, we felt there was greater value in using the resources of the VLDS to explore further the topic at the individual program level.

The VLDS is a collaborative effort among SCHEV, the Virginia Department of Education, the Virginia Employment Commission, the Virginia Community College System, and the Virginia Information Technologies Agency. Other partners are expected to join in 2013 and beyond.

Through the VLDS, each agency makes available individual-level, de-identified data that allow us to track securely outcomes of students across the state without violating privacy or confidentiality. More information about the VLDS may be found here (www.vlds.org) and here (http://research.schev.edu/apps/info/Articles.The-Virginia-Longitudinal-Data-System.ashx).

These data do not tell the entire story of what choices graduates of a given program make. The data to which we have access are limited to graduates employed in Virginia in positions subject to protection by unemployment insurance. (This is fully described on each page of the reports.) Further, we do not have information on graduates who pursue additional education outside of Virginia, or at proprietary or out-of-state institutions offering programs in Virginia. We also do not know why graduates choose specific enrollment or employment options. Reviewers of the data should be mindful that local economies may have a profound impact on wage outcomes.

Degree Levels

Chart 1 from the Post-Completion Wages of Graduates below shows the trend in wages 10 years after students entered a Virginia college or university based on the highest credential earned. It is clear that completing a degree matters and that the level of degree matters.
Recent High School Graduates at Time of Entry.
Limited to graduates working Virginia in positions reported to the Virginia Employment Commission.

All groups of credentials are based on five-year aggregations of students, full- and part-time, starting college for the first time within a year of finishing high school. The first group, individuals who do not complete a credential show median wages 10 years later of about $31,000 with little variation. Associate’s Degree – Bachelor Credit completers do somewhat better with a median wage of $34,000 that has increased from almost $32,000 over recent years. Associate’s Degree – Occupational/Technical credit completers do even better – about $1,000 better at the median. Bachelor’s degree completers have an even higher payoff (but with at least twice the investment in time, and perhaps even more in cost) with a median wage reaching over $44,000.

When considering the wages at 10 years post-entry in college, it is worth understanding that the last year of wages reported was calendar year 2011 and if years were reported individually instead of as a five-year rollup, we would likely see a decline over the last years of data.
Chart 2 demonstrates the overlap in earnings described in Rule 2 developed by CEW. The matching pairs of color lines bracket the 25th and 75th percentiles of wages for each level of credential.

Recent High School Graduates at Time of Entry
Limited to graduates working Virginia in positions reported to the Virginia Employment Commission.

The orange/dash-dot lines represent those individuals whom we could not determine as having earned a credential in Virginia. While they meet the criteria of having some college experience, we have no detailed data about what activities they have pursued since leaving college. It is clear though that wages for individuals with no credentials lag behind both those with associate’s or bachelor’s degrees.
Perhaps the most important concept to take away from this second chart is that the median wage of a degree is not a limit, but merely measurement. An individual can earn more money than another with a higher-level degree based on a number of factors that may consist of location (Northern Virginia as compared to Southwest Virginia), personal attributes (leadership, assertiveness), or market demand for the program of study. For example, the $52,246 median wage for the associate’s degree in dental hygiene easily exceeds the median wage for bachelor’s degree in economics of $37,912. While both degrees are valuable, they generally appeal to individuals with differing skill sets and personality traits. These data seem to track nicely with the data in *The College Payoff*.

The limits of these data are critically important to understanding the wages. The data available to SCHEV through the VLDS are currently limited to the Unemployment Insurance Wage records collected by the Virginia Employment Commission (VEC). These data are limited to individuals employed in Virginia, in positions covered by unemployment insurance, and further, these data exclude federal employees, including the military. Also excluded are the self-employed, including business owners/entrepreneurs, and independent contractors (such as consultants, some counselors, attorneys) and a variety of other occupations. As part of our standards of measurement across all these reports, we have limited calculations to individuals earning at least $13,195 annually as a marker for full-time employment since the wage data do not distinguish between full-time and part-time employment. We have also excluded the wages of individuals enrolled in higher-level programs since it seems likely those individuals are not trying to maximize their immediate wages, but instead focus on further study, which we see as being a greater potential benefit. See the related Frequently Asked Questions document for further explanation of these standards and the limits of disclosure.

**Associate’s Degree – Bachelor Credit**

The Associate’s Degree – Bachelor Credit, also known as the “transfer degree,” is not necessarily intended as credential for employment. However, the preceding charts certainly demonstrate that it has economic value beyond that of not having a credential. First we should note that SCHEV’s data show that typically 49-50% of these graduates enroll in a Virginia institution at the four-year degree level the year following graduation. Further, since our data are limited to Virginia public and nonprofit institutions, the actual percentage of graduates enrolled at higher level is certainly higher. SCHEV does not currently have funds to use the National Student Clearinghouse to match records to determine which students have enrolled at out-of-state institutions which limits the match further. Finally, SCHEV records also do not include students enrolled in proprietary schools in Virginia or out-of-state institutions serving Virginia residents.

In reviewing the wages of these graduates at 18 months post-completion, it is important to remember that we are only calculating wage statistics of graduates who did not enroll in an upper-level program the year following graduation. Overall, we see a median wage of $27,693 over the last five years. This is substantially below the approximately $36,067 median for the occupational/technical associate’s degree. However, in the case of a transfer degree, the percentage of graduates included in the wage analysis as having full-time wages is 20% as compared to 60% of the applied science associate degree completers, or three times as many. This is as it should be; we should see the majority of graduates from a transfer program actually transferring.

Additionally Chart 2 illustrates that many transfer degree completers earn as much or more than some bachelor’s degree completers.
**Associate’s Degree – Occupational/Technical**

Also known as the applied science associate’s degree, this workforce-focused degree represents a significant value to many students. The median wages of applied science degree have increased from approximately $32,600 to $36,100 – significantly more than the nearly $33,000 median for bachelor’s degrees – at 18 months post-completion. Before looking at specific programs behind these numbers, we should reconcile what might appear to be a discontinuity between the wages at 10 years post-first-time entry ($35,500) and 18 months post-completion ($36,372).

Intuitively, one would expect the first number to be significantly higher than the second. There are a number of possible explanations for this, but one stands out above all others. The two measures look at substantially different groups of individuals. The first looks at individuals who started college within 12 months of completing high school, completed a credential, and were then found in the workforce data 10 years later. These “traditional” students are only a part of the community college graduates in a given year. The community colleges serve student populations consisting of the traditional 18-year-old right out of high school, the nontraditional older student (25 and older), working single parents, returning veterans, displaced workers, and current workers upgrading their skills or seeking promotion. This mix makes the traditional student quite rarified compared to their fellow students. Further, because we look at the highest credential earned, we know that a number of graduates went on to complete a bachelor’s degree within the 10-year time period, so we are left with a smaller number of graduates for use to calculate wage statistics.

Thus, when we look at the graduates of a given year from the community colleges, we are often looking at a very heterogeneous group with varying backgrounds and experience, both of which can play significant roles in employment outcomes. Also, many of these programs are for careers that are easily translatable into sole proprietorships or other businesses that take the graduate out of the wage data. Finally, when we take a statewide look at wage outcomes using graduates at a base, we see values that are driven by the numbers of graduates from high-population areas, which often have the highest wages.

Of the 10 largest programs in terms of the numbers of graduates, nine are registered nursing programs. Using Northern Virginia Community College (NVCC) as an example, we see that typically at least 76% of graduates are identifiable as being employed in Virginia with a full-time wage, with three percent enrolled elsewhere, six percent with part-time wages (which may merely reflect partial year employment), and up to 16% with no information.

The median wage of NVCC registered nursing graduates of $48,536 exceeds that of all NVCC associate’s degree (occupational/technical) graduates by roughly $5,200. It also exceeds the median of $44,346 for all registered nursing graduates at the associate level.

We see a similar pattern for the same program at Blue Ridge Community College (BRCC), a primary difference being that the median wage for the nursing program $43,358 exceeds the median for all BRCC graduates at the same degree level by $11,650, while lagging slightly behind the statewide median for registered nursing programs at $44,346.

The Heating, Air Condition, Ventilation and Refrigeration Maintenance Technology/Technician program at NVCC also produces a median wage well above the statewide median for associate’s or bachelor’s degrees at $49,863. This is precisely the kind of information that may help students and their families better understand the value of the associate’s degree and the non-academic track.
Bachelor's Degree

The most popular major among students seeking a bachelor's degree is psychology, which typically represents seven percent of the total graduates in a given year. It is not one of the degree programs at the highest end of the wage spectrum in SCHEV’s data. In fact, at 18 months post-completion, across all psychology programs in the Commonwealth, the median wage is $27,232 compared to a median wage of $33,122 for all four-year bachelor’s degree programs between the years 2005-06 and 2009-10. For both values, the percentage of graduates represented with full-time wages is comparable, 33% for psychology graduates versus 37% for all graduates. Does this mean that psychology is a poor choice of a major in terms of the ability to earn? Not at all. What it does mean is that users of this data need more information to make any kind of decision about psychology as a major or a program.

Frequently we hear that psychology is a common major for student wishing to pursue elementary school teaching. In fact, based on email polling of the teacher preparation programs in the Commonwealth by Virginia Department of Education (VDOE) on behalf of SCHEV, it is second only in popularity to interdisciplinary studies. This would establish a fairly common ceiling in wages for first-year teachers. According to data from the VDOE, starting salaries of teachers with a bachelor’s degree ranged from $29,500 in Smyth County Public Schools to $44,065 in Prince William County Public Schools. Of course, it is worth noting that that these figures apply to all new teachers regardless of major. What we can gather from this is that location matters when it comes to wages, in some cases, more than major. However, given that VDOE also provides an annual critical shortage list, while major might not matter in wages (although special inducements and stipends are possible), there is a strong likelihood that it matters in ease of finding a job.

The current policy initiatives to increase the numbers of degrees in Science, Technology, Engineering, Math, and Health professions (STEM-H) suggest looking more closely at some of those programs. For example, the statewide medians of graduates in 2008-09 for Chemistry ($29,488), Engineering Technologies and Engineering Related Fields ($52,255), Industrial Engineering ($56,134), Mathematics ($37,380), and Radiologic Technology/Science – Radiographer ($47,238) demonstrate variance across STEM-H programs. However, in this sample, only Chemistry has a lower median wage than the statewide median for all bachelor’s degrees.

Master’s, Doctor’s, and First Professional Degrees

Representing varying levels and approaches to advanced studies, master’s, doctor’s, and first professional degrees offer increased earning potential from completion onward. As we cited at the beginning of this document, CEW estimates significantly greater lifetime earnings on average for each level of advanced study. For example, while a bachelor’s degree completer earns an average of $1 million more over a lifetime than an individual with only a high school diploma, an individual earning a doctor’s degree earns on average $1 million over a lifetime than the bachelor’s degree completer. An individual with a first professional degree averages even higher earnings over a lifetime.

A key factor to recognize about doctor’s and first professional’s degrees is that the marketplace for those credentials is truly national, even international. Thus it is not surprising that relatively few graduates of such programs end up working in Virginia.

The wages of master’s degrees completers 18 months following graduation range from nearly $38,000 at the 25th percentile to nearly $65,000 at the 75th percentile. The median comes in at $48,721, which
suggests when viewed graphically that there may be a great deal of variation within the third quartile, as compared to the narrower second quartile. This pattern has been consistent over the years in the study period.

The 10 largest master’s programs in Virginia are predominantly education programs, which is not surprising. Graduate programs at this level are the next step in developing and maintaining experienced and talented teachers. They are also part of the stepping stones to administrative positions. Of course, the salary scales used by localities in hiring teachers places ceilings on what these graduates can earn.

Other programs have no general wage ceilings. For example, master’s degrees in Systems Engineering, Information Science, Engineering Management, Industrial Engineering, Management Information Systems, have median wages between $84,000 and $108,000 at 18 months post-completion. These programs are the top earners at the 18-month mark for all degrees, behind the first professional pharmacy degree ($111,202), nurse anesthetist master’s degree ($130,880), and a master’s degree in project management ($115,544). This also demonstrates the same kind of overlap we explored with wages of undergraduate degrees consistent with the idea that degree level matters, but occupation can trump degree – a master’s degree can earn more than a doctor’s degree.

Conclusion

We end where we began: Education matters. In materialistic, practical terms, degree attainment matters in that, on average, individuals with higher level degrees tend to earn more than those with lower level degrees. However, some occupations earn more than others regardless of degree level. This is not new information, and it’s consistent with the work of the Center on Education and Workforce.

What is new is the availability of rigorously constructed data on wages of graduates 18 months and five years post-completion down to the specific degree and program at a given university or college. This information can be useful in understanding the cost and the financial benefits of a specific college degree. However, it is only a partial measure of benefits. There are many possible benefits from higher education and no individual should focus solely on possible wages, especially wages that are admittedly very short term.

For further reading about these reports and the Virginia Longitudinal Data System, please see:

The Virginia Longitudinal Data System (http://research.schev.edu/apps/cms/Guide-to-the-Post-Completion-Wages-of-Graduates.aspx)

Frequently Asked Questions About the VLDS and Wage Outcomes Reports (http://research.schev.edu/apps/info/Frequently%20Asked%20Questions.Post-Completions-Wages-of-Graduates-FAQ.ashx)

For additional information on planning and paying for college and careers, please see:

Virginia Education Wizard (www.vawizard.org)

Virginia529 (www.virginia529.org)